

## HOLOGRAPHIC SPECTRAL FILTER

### ABSTRACT

5 Method and apparatus are contemplated for receiving from an input, an optical  
signal in a volume hologram comprising a transfer function that may comprise temporal  
or spectral information, and spatial transformation information; diffracting the optical  
signal; and transmitting the diffracted optical signal to an output. A plurality of inputs  
and outputs may be coupled to the volume hologram. The transformation may be a linear  
10 superposition of transforms, with each transform acting on an input signal or on a  
component of an input signal. Each transform may act to focus one or more input signals  
to one or more output ports. A volume hologram may be made by various techniques,  
and from various materials. A transform function may be calculated by simulating the  
collision of a design input signal with a design output signal.